

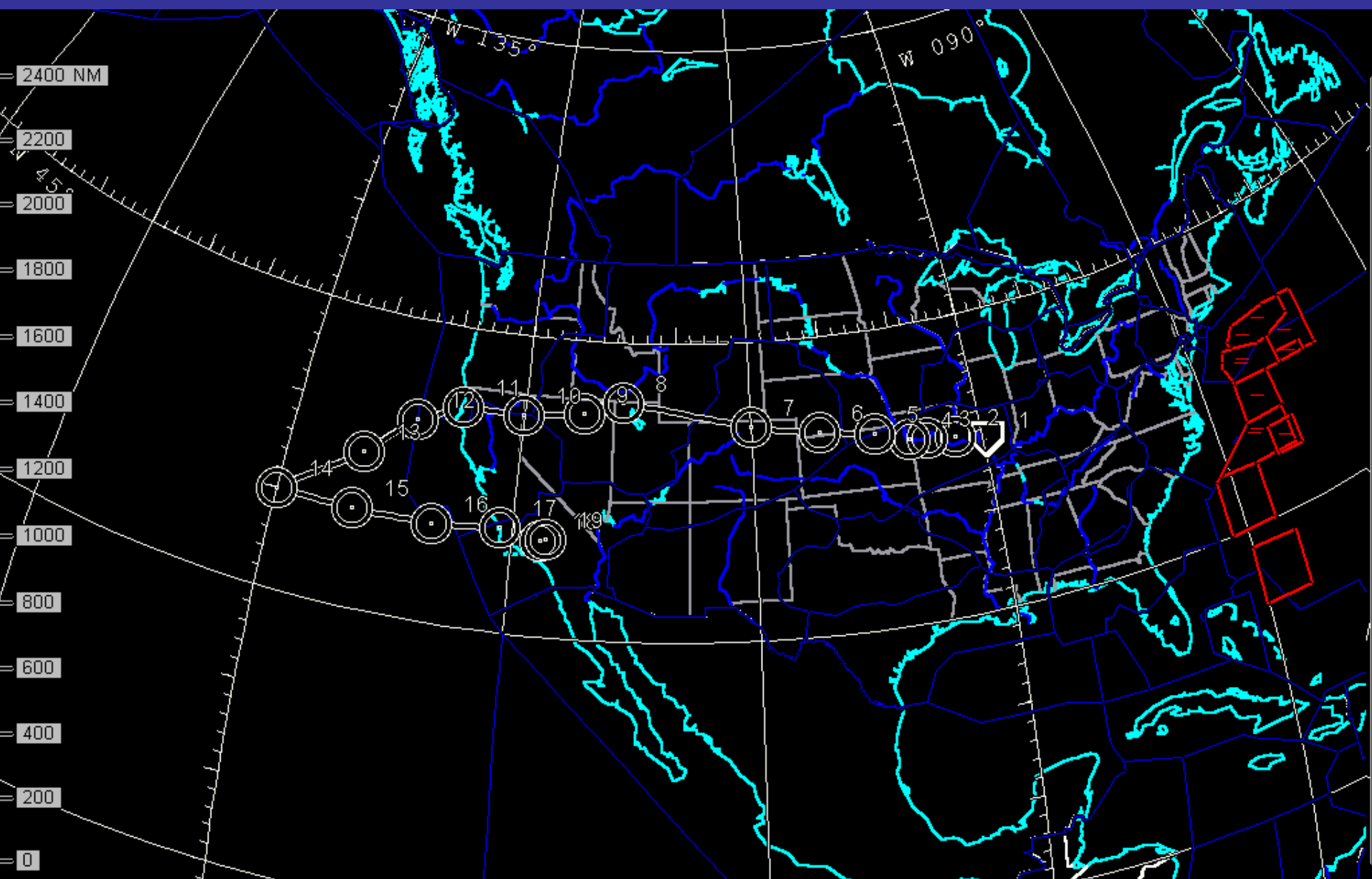
INTEX-20 transit flight summary- August 14, 2004

This was the last INTEX-A flight with the principal goal of returning to Dryden while achieving limited science objectives. This flight was planned to encounter Asian outflow two different times, first above the central US (well aged) and later near 135 W in conjunction with an AQUA spiral where the outflow was several days fresher. Limited vertical profiling enroute to the satellite rendezvous was expected to probe convective outflow from storms in Nevada. Nominal take off time was 1530 UT with a total flight duration of 10 hours. The flight plan and flight profile is shown in the attached slides. During preflight a significant fuel leak in the DC-8 was discovered resulting in delay with an actual takeoff time of 1700 UT. With this delay, the timed aqua under-pass was no longer possible and the flight plan was substantially modified. Meteorological support on this flight was limited to forecast products provided the night before.

After a brief discussion with the science team, it was decided to target the aged Asian air over Nebraska, and also the biomass burning plume forecasted to be underneath it. We set up a short wall along 41 N, between 97 and 100 W. First pass at 31 Kft placed us slightly below the tropopause in a layer that might have been the Asian air and revealed two contrasting layers beneath (one high O₃ and very low aerosol at 19 Kft, and one with the opposite character at 9 Kft). Unfortunately, the western end of this wall had clouds at several heights, but we did sample the layers targeted by DIAL. All three level legs exhibited significant structure along their length. We were also able to do reasonable vertical profiling enroute to the CA coast. After the wall a boundary layer run over western Nebraska allowed sampling of rural continental air with dust up to 6 microns. A series of level legs between 15 and 35 Kft got us into the forecasted convective outflow. Interestingly, on the two high altitude legs (first over the Rockies and later above the corners of Utah/Nevada/Idaho) the western ends of the legs showed sharp enhancements in many of the species measured. The first unexpectedly enhanced at 35 Kft was a visible haze layer with the lowest single scatter albedo of the mission (0.7), CO above 200 ppb and no change in CH₄ (presumed to be wildfire smoke). The encounter further west was characterized by high O₃, SO₂ and PAN, moderate CO and low levels of NO, HNO₃, H₂O₂ and HCHO. We spiraled down to the top of the marine stratus from 35 Kft just west of Trinidad head, got 15 minutes just above the clouds over the ocean and then expedited return to Dryden at 15 Kft. Smoke from several fires was seen below and the boundary layer was exceptionally hazy. This was sampled on descent. This transit flight accomplished several of its science objectives despite the difficult start that resulted in the ad hoc design of a new flight plan on short notice.

The navigational data are available at URL: <http://www.dfrc.nasa.gov/Research/AirSci/DC-8/ICATS/index.html>

Intex-NASA 817 14 Aug 04



DC-8 NASA 817 INTEX 14 Aug 04

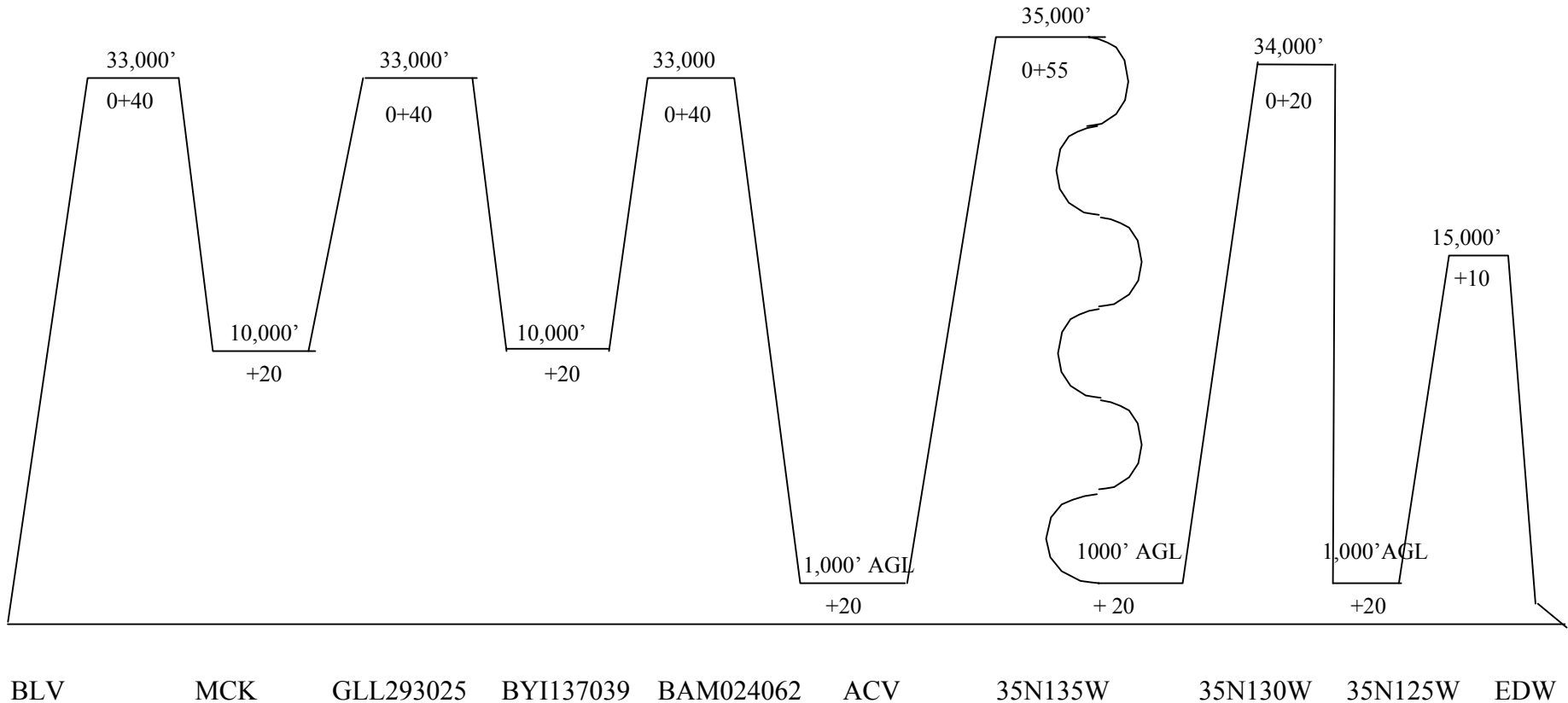
SPIRAL CLIMBS

to 10,000 msl @1,000 fpm

then 1500 fpm

ALL ENROUTE CLIMBS/DESCENTS

1500 FPM



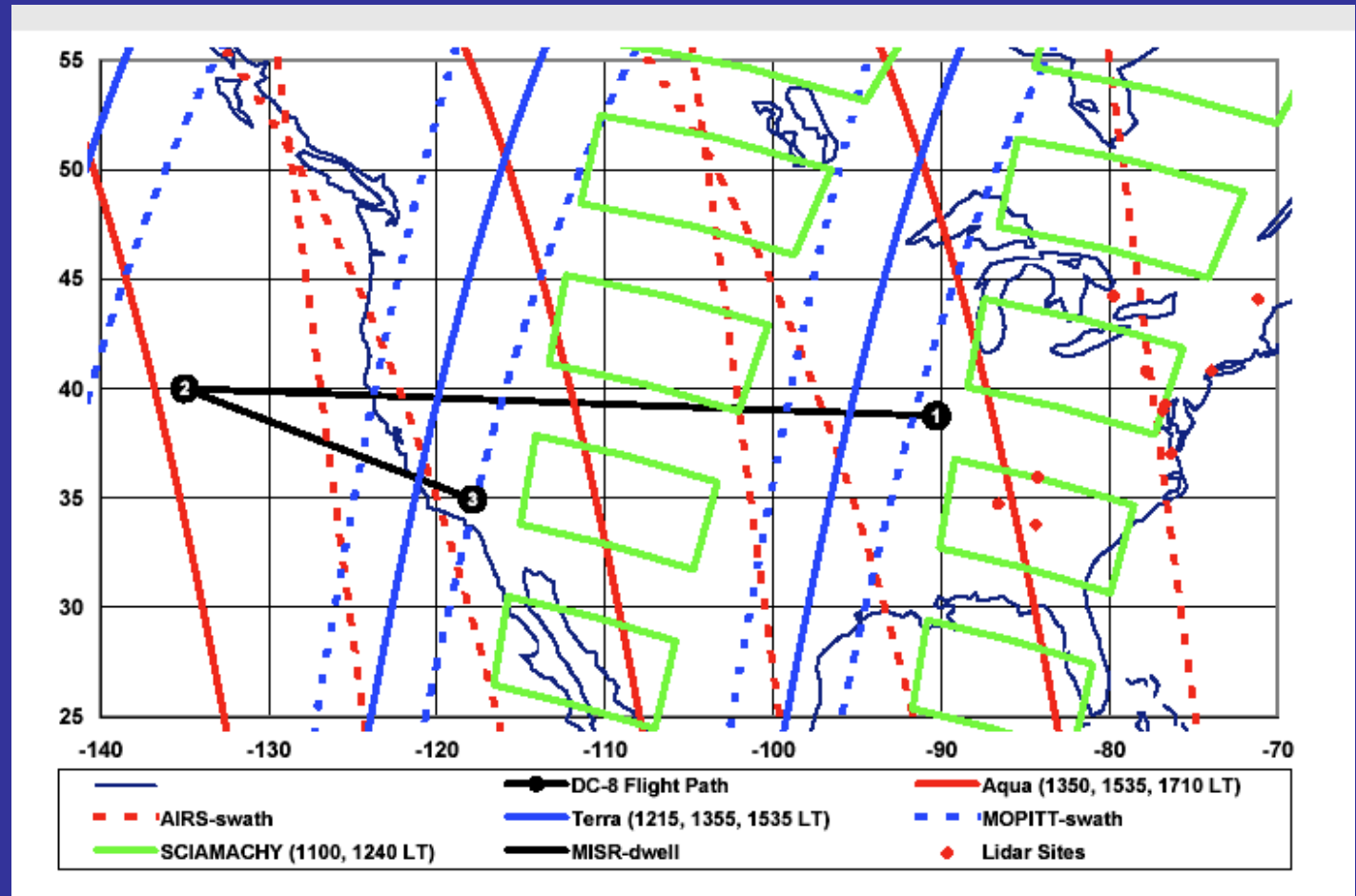
TYPE ACFT DC-8		CALL SIGN NASA817		DATE		FROM SCOTT AFB MID N 38 32.7 W089 50.1		TO EDWARDS AFB N 34 54.3 W117 53.0		PLND TO 15:25		ACT TO		PILOT		COPILOT								
TOT DIST 3073.5		TOT TIME 10+06		FUEL REQ 103124												NAVIGATOR		ENGINEER						
TP DTD#	Fix/Point Description		FREQ		Latitude Longitude		Alt Wind		TAS GS		TC MC		LEG DIST DIST REM		LEG TIME TIME REM		ETA		RETA		ATA		REMARKS	
1	KBLV/A SCOTT AFB MID				N 38 32.7 W089 50.1		459M				136 137		0.0 3073		00+00 10+06		15:25							
2	WELTS WELTS				N 39 00.4 W091 46.4		20000M		330 330		287 286		95.0 2978		00+17 09+49		15:42							
3	DRIVL J24 DRIVL				N 39 11.1 W093 34.5		20000M		330 330		277 276		84.9 2894		00+15 09+33		15:58							
4	MCI J24 KANSAS CITY		079Y 113.25		N 39 17.1 W094 44.2		20000M		330 330		276 274		54.5 2839		00+10 09+23		16:08							
5	MHK/E334044 MANHATTAN		039X 110.20		N 39 50.0 W097 00.0		20000M		330 330		287 283		110.0 2729		00+20 09+03		16:28							
6	MCK/E MC COOK		100X 115.30		N 40 12.2 W100 35.7		20000M		330 330		278 271		167.2 2562		00+30 08+33		16:58							
7	GLL/R293025 GILL		089X 114.20		N 40 45.0 W105 00.0		20000M		330 330		279 270		204.3 2358		00+37 07+56		17:35							
8	BYI/E137038 BURLEY		088X 114.10		N 42 00.0 W113 30.0		20000M		330 330		281 269		391.0 1967		01+11 06+45		18:46							
9	BAM/R024062 BATTLE MOUNTAIN		059X 112.20		N 41 20.0 W116 00.0		20000M		330 330		250 236		119.3 1847		00+22 06+23		19:08							
10	LLC/R293084 LOVELOCK		112X 116.50		N 41 00.0 W120 00.0		20000M		330 330		264 249		182.3 1665		00+33 05+50		19:41							
11	ACV/E ARCATA		039X 110.20		N 40 58.9 W124 06.5		20000M		330 330		270 254		186.7 1478		00+34 05+16		20:15							
12	SHENU/W SHENU				N 40 00.4 W127 00.0		20000M		330 330		246 230		144.7 1334		00+26 04+50		20:41							
13	BOSKE/W BOSKE				N 37 50.0 W130 00.0		20000M		330 330		227 211		191.6 1142		00+35 04+15		21:16							
14	.35N135W none				N 35 00.0 W135 00.0		20000M		330 330		235 220		295.6 846		00+54 03+21		22:10							

TP DTD#	Fix/Point Description	FREQ		Latitude Longitude		Alt Wind	TAS GS	TC MC	LEG DIST DIST REM	LEG TIME TIME REM	ETA	RETA	ATA	REMARKS		
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	.delay		N 35 00.0 W135 00.0	20000M	330 330	235 220	0.0 846	00+35 02+46	22:45			
15	.35N130W none		N 35 00.0 W130 00.0	20000M	330 330	090 075	246.4 600	00+45 02+01	23:30			
16	.35N125W none		N 35 00.0 W125 00.0	20000M	330 330	090 075	246.4 353	00+45 01+16	00:15			
17	MQO/R MORRO BAY	071X 112.40	N 35 15.1 W120 45.6	20000M	330 330	086 071	209.2 144	00+38 +38	00:53			
18	ROSIE/W ROSIE		N 34 51.1 W118 12.4	20000M	330 330	101 087	128.0 16	00+23 +15	01:16			
19	KEDW/A EDWARDS AFB		N 34 54.3 W117 53.0	2302M		079 065	16.2 0	00+15 +00	01:31			

INTEX-20 Transit flight plan- August 14, 2004

Flight duration:
9 h



Objectives:

- Satellite underpass
- Asian outflow
- NA inflow